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Monthly Bulletin

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OUR PURPOSE

President J. R. Spalding

OUR SOCIETY WAS FORMED BY A GROUP OF FANCIERS INTERESTED IN AN ACTIVE AND PROGRESSIVE SOCIETY TO HELP THE FANCIERS GAIN FURTHER KNOWLEDGE ON OUR CHOSEN HOBBY. WE SHALL ENDEAVOR WITH YOUR CO-OPERATION TO HAVE A SOCIETY OF WHICH WE CAN ALL BE PROUD. NO ONE PERSON'S EFFORT CAN INSURE SUCCESS. WE MUST ALL PULL TOGETHER.

OUR PURPOSE IS TO RAISE THE STANDARD OF THE BUDGERIGAR, AND TO GAIN A GREATER KNOWLEDGE OF HIS HABITS. WE ARE COMPOSED OF A GROUP WHICH IS DETERMINED TO SUCCEED, AND WE WILL SUCCEED IF ANY KIND OF SUPPORT IS GIVEN AT ALL. WE SHALL ALSO BRING ABOUT, AS SOON AS POSSIBLE, A CODE OF ETHICS SO THAT THE NEWER FANCIER CAN BUY WITH CONFIDENCE, BY CLOSE BANDING ALL OUR BIRDS. WE WILL BE ABLE TO TELL THE SOURCE OF THE BIRDS PURCHASED AND WE WILL BE MORE OR LESS ASSURED THE AGE OF THE BIRDS. THE SYSTEM OF A MONTHLY BULLETIN IS THE INSTRUMENT BY WHICH WE CAN KEEP IN CLOSE TOUCH WITH EACH OTHER, REGARDLESS HOW SCATTERED WE MAY BE.

* * * * *

M O N T H L Y B U L L E T I N

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A REVIEW OF A. B. S.

You have been told many times that A.B.S. is incorporated as a non-profit organization. Therefore, not one of its officers receive any remuneration whatsoever for his services. The articles of incorporation also read that, should A.B.S. dissolve at any time, all funds in the treasury shall be given to the Red Cross. In spite of all this, every once in a while you hear rumors that a certain few A.B.S. officers are getting rich operating A.B.S.

Oh well, we are told that Columbus and his followers also insisted that the world was flat. So it goes.

You have also been told that when A.B.S. was organized, the organizers decided that it should be run on a business basis rather than methods employed by similar societies, which very often pass out of the picture; or, at best, showed very little growth at the end of five or six years. Every member of A.B.S. should be grateful that its founders made that decision. In its eleventh year, it is still growing by leaps and bounds, and can boast of a membership of over 4600.

Today, most businesses put out a Loss Leader, and so does A.B.S., and it has for the last seven years. That Loss Leader is your A.B.S. monthly bulletin. Few of you realize that the cost of putting twelve copies of the bulletin into your hands today is \$3.64, for which you pay \$2.50. We were determined that the profit from ads, plus the small profit in the sale of bands and registrations, should make up the difference; and our increase in membership would cut down the losses, from year to year. But there was one thing we did not figure on, and that was inflation, with the cost of every single item that goes into the making of the bulletin from two to four times as much as the original cost you can see where we stand today.

Now, I know that some of you are saying, "Well, I can see what the old boy is leading up to -- an increase in dues." But you are wrong, at least for the present time, or until such time that every effort we can conceive of to make up the loss fails.

A good many of the old timers in A.B.S. have known for a long time that the diet we were feeding our birds was deficient

and responsible for a good many of our troubles. Through experiments we knew what the birds needed, and found that it was a combination of a good many ingredients, and that everyone was essential to the perfect, balanced diet. To get this mess together, and that is just what it is -- a mess -- was the thing that had us baffled. It took a member of A.B.S., who was an old time poultry fancier, to solve our problem. So now we are just about ready to offer you this supplement food. In doing so, our method is two-fold: First, to help you produce better birds; Second, to make a profit for A.B.S.

It has never been the intention of anyone connected with A.B.S. to do anyone any harm. So, the seed wholesalers and retailers will be offered this food at a legitimate margin of profit.

I was just thinking that some of our critics will say, "Just when do these guys in A.B.S. find time to do all this work for free?" Just to ease their minds, I will inform them that some of your officers spent all day last Saturday and Sunday working on these A.B.S. problems, (with their wives 'champing at the bit', God bless them). I am writing this at 11 P.M. in a hotel room at Richmond, Indiana. So, you see there are still some fools left in this world, like your officers of A.B.S.; or I guess the better thing to say is some believers. You know the science of believing will accomplish anything if you just believe. If every member of A.B.S. will just believe in us, some day in the not too distant future, you will find yourself a member of the largest and strongest bird society that the world has ever known; and I do hope for the cost of \$2.50 a year.

J. R. SPALDING.

ANNOUNCEMENT

A.B.S. PROTEIN MINERAL SUPPLEMENT FOOD

We hope that some time during the month of March to be able to start supplying a new Protein Mineral Supplement Budgerigar food, under A.B.S. trade mark.

This food has been tested in selected aviaries over the past two years. During the fall of 1951, the number of aviaries in which it was tested were increased. The reports and the results obtained have been so flattering that we are willing to let the food build its own reputation.

Yet - We do believe that a few remarks pertaining to the results and the work that has been done by the officers of your Society are in order. This new food has been tested in the best food laboratories we could find dealing in foods for poultry and birds. Two of the largest manufacturers in America, when we first talked to them, were of the opinion that two foods they offer to the poultry and wild bird fanciers were just as good. So we asked that they and we consult their doctors and experts. The reports came back in favor of the A.B.S. Protein Mineral Supplement.

Arrangements have been made for its manufacture and it will be laboratory tested. Further, it will be verified by Purdue University Laboratories, one of the finest colleges in America.

The greatest encouragement from a practicable standpoint to us was that the results were uniform. Average clutch of eggs increased; Hatchability increased; Breeding Stock remained in good feather throughout the mating season. Young birds' development showed great improvement. Various tests have been made. Breeding pairs on which we had records of past performance in other years, were denied the food during the laying of the first clutch this breeding season, then given the food after the eggs were laid. The first clutch corresponded with previous years' records. The results from second clutch were far better than any previous record.

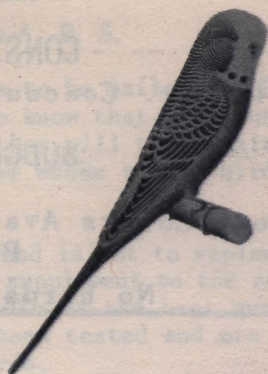
In every case where we furnished samples, the breeders came back offering to buy the food. Some of the reports were so flattering, we will not repeat them. One man whom I believe to be the closest observer of birds I know, reported that he owned a male bird that grows a beak and claws so fast that it was necessary to trim the bird's beak every four weeks so the bird could eat. He claims that shortly after he had added the A.B.S. Supplement to the bird's diet, he trimmed the bird's beak and it has not grown since. Understand this is only one bird and it is his

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Indianapolis 5, Indiana

report, and he is not an officer in the A. B. S.

We are packing it in 5-pound bags to be mailed via Parcel Post. First we ask that you try it. We know that a 5-pound bag will not strain your pocket-book. Neither will the results become apparent until it is fed for a few weeks to the birds you select.

We want it understood that this food is not to replace the regular seed diet. It is to be used as a supplement to the regular seed diet. It contains an animal protein of the best quality, many vitamins and minerals that have been tested and are known to be necessary in the diet of all birds.

The best experts we consulted all agree that the birds' diets should consist of 70% seed. Why? Because nature intended them to be seed eaters.

We are of the honest opinion that this food will accomplish what others tried to do with drugs and failed. There has been sufficient experiment with poultry and other livestock to prove that when drugs such as auromycin are used, trouble developed.

The subject of auromycin has been thoroughly investigated. In the case of poultry and hogs for slaughter, in the first year of their lives, it proved to be of some value, but laying hens burned themselves out the first year, and were useless thereafter. Breeder after breeder whom I personally consulted and many experts said they would not feed it to breeding stock. I have read articles by several doctors condemning its excessive use, claiming that its use would develop troubles of various kinds.

From the beginning, Mr. Spalding, Mr. Cole, myself and others were of the opinion that its use would cause nature's antibiotic to cease their functions, and we were justified in our beliefs. The Budgerigar Society of Britain has condemned its use as a food. Their experiences are that a bird fed upon Auromycin is short-lived. Many died in the second year and most of them are burned out. Their Scientific Committee condemned its use so vigorously that its use is debarred, and birds that have been fed auromycin are barred from competition in their shows.

The A.B.S. Supplement will contain a small amount of auromycin and Vitamin B12. We feel that when used properly, it is of some benefit, and will not harm the birds when fed in a mixture of A.B.S. Supplement and seed.

We have also learned that the portion of Canary, Millet and

Oats formerly recommended should be changed to properly balance the protein requirements:

Canary Seed	Contains	13% protein
White Millet	Contains	11% protein
Oat Groats	Contains	17% protein

In trying to balance the ration to provide the required number of proteins for cage birds, we recommend the following mixture for Budgies:

4 Parts Canary	4 X 13	=	52
4 Parts White Millet	4 X 11	=	44
2 Parts Oat Groats	2 X 17	=	34
	<u>10</u>		<u>13.0% protein</u>

Now take:

7 Parts Seed Mixture	7 X 13	=	91
3 Parts A.B.S. Supplement	3 X 20	=	60
	<u>10</u>		<u>15.1% protein</u>

15% Protein of good quality provides all the essential amino acids, vitamins and minerals.

Now as you know, a budgie as well as a chicken will shy away from any food that is offered to it for the first time. It is not that they dislike it, rather because it is strange. This supplement is not bad to taste, try it yourself. In every place where it was tested, the budgies ate it. Different breeders feed it differently. Some feed it separately in dishes or hoppers; others mix it in with the seed. A few of my older birds were longer in accepting this new food due to their eating habits being formed. However, when mixed in the seed before soaking, they did not refuse it and later the most of them ate it from the seed hoppers. I do recommend that it be added to the regular mixture in proportions recommended above, before the seed is put to soak. This will insure that the young chick receive it in their diet. Later when the chicks are placed in nursery flights, they eat the new food as well as the seed.

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PANEL JUDGES

We are publishing the names and addresses of A. B. S. Panel Judges. Patronage will be granted where they are employed and where schedule of classes are complied with.

A. B. S. judges are not permitted to judge any other variety of cage birds in connection with the budgie section, and we would like to see that they are not compelled to judge more than 200 budgies. With all the specials that are awarded in some shows of today, when a judge has finished with these specials and 200 birds, he actually has judged over 300 birds.

Mr. W. H. Gooderham	31 Lavender Rd.	Toronto, Ontario
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Mr. T. Douglas	2 Edgewood Gdns	Toronto, Ontario
Mr. S. D. Blaeuer	Rt. 3, Box 290 G	Alexandria, Va.
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Mr. J. R. Spalding	6371 Washington Blvd.	Indianapolis 5, Ind.
Mr. E. B. Hudelson	2619 E. 12th St.	Indianapolis 1, Ind.

LETTERS TO THE EDITOR

FRENCH MOULT

As seen by

a VETERINARIAN

After many years as a poultry fancier, in which activity I lost interest as production poultry took over and the old backyard poultry fancier died out in the Middle West, I suddenly discovered that here under my nose was a better fancy just in its infancy in the United States. And did I fall for this budgie fancy, and better yet, so did my wife!

I read everything I could get my hands on pertaining to these birds, particularly the discussion of diseases and their control. I know many of the best research men both employed by the States and connected with private companies, and I quickly discovered

that what they knew about the diseases of these birds was absolutely nothing. In most cases they didn't even know a budgie from a love bird. We, as budgie fanciers, must remember this fancy is relatively new in this country and that there are many research problems in many classes of livestock which are very important to the welfare of our country.

The subject of French Moults has been given my special study and consideration. Now in my ignorance and in a spirit of friendliness to all concerned, I would like to present my theory in regard to this condition just as a veterinarian and a brand new fancier. I wish to make no enemies, but must get this thought off my mind.

Here are the two modern theories as to the cause of French Moults:-

1. Nutritional.
2. Mites (particularly fodder mites).

Now as to the Nutritional theory: I have seen French Moults in several aviaries. Some of the parent birds might have been overworked, bred too young, poorly grown, but others definitely were not. Some fanciers were feeding greens every day, some every other day, and some not at all. Some were feeding supplements to the regular seed diet and some were not. One fancier was practicing colony breeding with birds overcrowded, bad sanitation, and birds bred any number of times. He stated he had no moults, and I could see no evidence of it. On the other hand, I saw it in aviaries with birds under the most desirable conditions.

As to the Mite theory: I had an outbreak of French Moults last winter. I had been looking for mites ever since I started raising these birds. I looked at the perch ends, in the cracks of the nest boxes, under the nest blocks, in the seed, seed hulls, and on the birds themselves. I looked for them on high, low, and under oil magnification. No mites. I used a magnifying glass in order to cover a broader field. No mites. All my life I have been looking at both animal and poultry mites and have had no trouble finding them, but here all at once I couldn't find them when they were supposed to be present.

In my outbreak it appeared among the young in nest boxes, from birds that I had raised. These were not particularly good birds and I thought that either parent weakness or faulty feeding might be the cause. I received two pairs of breeders from two different outstanding fanciers. These birds appeared in very good condition, and in my eagerness I popped them right into breeding

cages. These breeding cages were across the breeding room from cages in which the others were showing moult. Their young promptly developed moult, one pair the worst case in my aviary. In other words, we had moult in young birds from conceivably both good and bad parents that had probably been raised under both good and bad feeding conditions.

Finding no mites ruled out the mite theory and the difference in the parent stock ruled out the nutrition theory. Also these young were fed on exactly the same diet that I was consistently using with very good results.

There remained but one thing as far as I could see then, or can see now. This condition had to be of a bacterial or virus origin - in other words, of an infectious nature.

In most bacterial or virus infections which are not fatal or in which the rate of fatality is low, we can have a great variation in the severity of the individual cases. In some epidemics, the first case may be mild. Then it becomes more virulent and at the end of the outbreak becomes mild again. This could explain the variation of opinion in regard to the percent of fatality in French Mould. One breeder makes the assertion that only two percent of infected birds recover without treatment. After talking to many breeders I find that most have no fatalities, or a very low rate at most. In my case, I had two fatalities and they were due to treatment.

Everyone is more interested in the treatment than in the cause of an infectious disease. I used DDT and ruled it out as it is neither an efficient mite killer nor an antiseptic of any value. Dett, from its chemical formula, should be a fairly efficient and safe antiseptic to use but its use as a dip consumes too much time for a person with limited time at his disposal.

Here are the preventive measures I am using at the present time. I am washing the breeding cages and nest boxes (the wife says, 'You mean, I am') with a quaternary ammonium compound. We soak the nest blocks, which are removable, for two or three days in this solution, dry out thoroly, and put back in use. This compound is very nominal in price, and is recognized by the Government for use as a disinfectant for washing dairy equipment and on utensils in eating establishments. It has some value as an antiseptic in drinking water for poultry tho I have not used it in the drinking water for budgies. In other words, it is non-toxic and has a high phenol coefficient.

Using this method I have had no cases for five months. The fertility of eggs has been good, so there evidently is no harm-

ful results from the soaking of the nest blocks. Several pairs whose young had been affected previously, were put back to breeding after a six months rest and have been free from trouble.

This apparent success can mean nothing as we go back to the well-known fact that infections come and then disappear of their own accord. Probably tomorrow I will look into a nest box and there it will be again. However, it offers a method that is ever so much easier than the dip method and may be of some value.

One last thought. Could it be, considering the bacterial theory, that heat, or degree of humidity, or the seasons of the year might have some bearing on making the causative organism virulent at times?

G. A. EVANS, D.V.M.

(Editor's Note: The above by Dr. Evans is a very intelligent approach to the subject of French Moul. I think it is fair to relate that in another case, where no mites were found, when the moulted feathers were examined, mites alive and dead were taken from inside the quills. Also that fodder mites have been seen to become paralyzed after being powdered with 5% and 10% D.D.T. Powder. We have not ruled out the theory of bacteria, whether from the bite of the mite or from other sources, as I have related in the Third Edition of The Scourge of French Moul, now being printed.)

FRENCH MOULT REPORT

I am now speaking of the birds that developed French Moul. I got your bulletin too late to try some without Dett, had it in three nests - 2 Lutino hens, one sp. Lut. male. I must have transferred it by my hands in cleaning nest boxes. 3 in another nest, and the last a white cinnamon. First three are in lovely feather now and I figured the 6-week period to be the end of January. Feathers are white now at the quill, not black. Other three in nest have new feathers popping out. Funny about the white cinnamon - I was wondering what you meant if I'd of dipped the birds sooner - now I know cause this bird only lost 2 long tail feathers and I pulled out some flights and by golly, next to his body, the feather looked normal, but down farther it was a blackish kind. So I did dip them in Dett. When I found the first 3 had it, I dipped every baby in room, and I guess I prevented more French Moul. Had 7 birds all told with French Moul. Now I wash my hands in a Lysol solution after cleaning each nest and handling babies. It takes longer, but F.M. is longer than hand washing. I think

Dett is the solution to French Mould, and so easy to use. The way I take care of and feed all my budgies I don't see how any of them could have a deficiency. I do think and won't change my mind on French Mould. I do think it's a mite - otherwise, how could it be cured with Dett. Sincerely,

INEZ SPENCER

FRENCH MOULT CONTROVERSY

By J. M. Braunstein

Frankly all that has been written of late is confusing the fancy even more. Let's go into this and see if we can clarify this a little, and clear up the contradictions. First of all, one or two cases do not constitute a study of the subject - you need hundreds of cases to form an opinion. My own belief is that nutrition and inheritance can be ruled out. Why? If someone will give me the caloric value of Dett and D.D.T., that is to say, the nutritional value of these two, you could convert me to that belief. In my encounters with this blight, I have found only the above effective in checking the malady. It is not a very good argument to say that French Mould can be allowed to cure itself. If a person is ill, we do not allow him to suffer - we try to assist and ease the pain or sickness so to me it's nonsense to expect a bird to cure itself. Granted there are some cases but if a case history is kept it will be a carrier and other birds will be infected by contact and chances are the bird itself will show infected feather at moulting time. The fact that I have made any progress against F.M. is due to a rigid program recommended by Dr. Armour and in Mr. Hudelson's book, The Scourge. Both these men have bred birds extensively and can be relied upon. So please let's not confuse the issue any more - cease this nutrition and inheritance dribble. It's misleading and not fair to the fancier who is trying to cure his troubles. All of us at one time or another have had this trouble, whether we have recognized it or not. Whether it is the Red Mite, the Fodder Mite, or a reaction caused by a mite bite, we can be fairly certain it is not nutrition or inheritance.

As for Inheritance, this cannot be proven either as I have bred birds which had the moult as young and have bred healthy birds from them and no sign of moult. On the other hand, I have purposely introduced normal birds into French Mould nests and have had them infected also in a short time. Where did the heredity angle make itself evident here? I'm not convinced either that heredity can manifest itself so readily on a bird that is not of

the same blood lines. The main trouble is that the authorities quoted have not revised their books to correspond with the later findings. Some of this is due to stubborn persistence and unwillingness to adopt someone else's ideas. The A.B.S. has withheld recognition of a well-known author's books due to writers not being correct in some of the subjects talked of in these books. True, anyone can be mistaken. We in the A.B.S. realize this. All we ask where a mistake is made that corrections be instituted so that the fancy as a whole may not be mislead. This is our purpose to find the truth and to the devil with personalities. There definitely is no point in quoting authorities who are outdated. It leads only to further bewilderment. Any time a member has a proven theory or method of curing an ill, the Society is more than glad to publish these findings. We will in no circumstances deliberately mislead the fancy.

Mr. E. B. Hudelson:

I just want to let you know how much I appreciate having bought your booklet on -French Moults. After reading it and finding out how to determine whether it is there or not, it was a very easy matter to detect French Moults in my flock and I used your remedy immediately having given all birds a dusting of 10% DDT Powder, and have already noticed a decided improvement as these birds are not feather picking as badly as they were before.

P. G. L.

Through the efforts of A.B.S., the Budgie may be found in the simplest house in the country to the best known house in the world - "The White House".

BIRDS AND ANTS GANG UP ON LICE

Washington, Jan. 24 (UP) - Ants can be an asset, according to Arthur Cleveland Bent of the Smithsonian Institution.

The hermit thrush and several other varieties of birds snatch ants and place them in their feathers, usually under their wings, to get rid of lice, Bent said. They also may kill ants and spread the juice over their bodies or dust themselves in ant hills. Some ornithologists believe the birds even eat ants to rid themselves of internal parasites.

The louse-repelling power of the ants springs from the formic acid they secrete.

BAN ON PARROTS LIFTED BY GOTHAM

New York, Feb. 4 (AP) - New York City today lifted its ban on parrots.

For 14 years, the sanitary code has forbidden imports of psittacine birds - parrots, parakeets, love birds and macaws - because cases of a disease, psittacosis, had been traced to parrots.

But the Board of Health said in abolishing the law today that recent research showed more cases of the disease among pigeons, ducks, chickens and sea gulls than among the psittacine species.

BRITISH TO LIFT BAN ON PARROTS: FIND NOW IT WAS UNWARRANTED

London, Dec. 28 (AP) - The British government decided today to restore to Britons the right to buy a parrot. The health ministry said it will revoke on Jan. 1 a 21 year old ban on all birds of the parrot type.

The parrot was a favorite pet in many British households before the ban was ordered in 1930 following an outbreak of psittacosis (parrot disease).

Explaining its decision, the health ministry announced psittacosis is not confined to parrots as was thought in 1930 but occurs also in Britain's commonest wild birds, including the pigeon, duck, and sea gull.

Here is a suggestion sent in by a member who has the interest of the fancy in his heart, and it is good advice:

During the past few months I have been giving considerable thought to the reason for our not benching more Budgerigars at our Bird Shows.

I have at last reached the conclusion that the majority of our members are more interested in the production and sale of pet birds than they are in the Bird Fancy, as such.

This is a short-sighted attitude on the part of pet shop owners. A good display of ribbons and trophies won at Bird Shows will command the respect of your customers, and help you obtain better prices for your pet birds!

Pet shop owners, more than any other group, should plan on exhibiting some birds EVERY YEAR. It is merely good business on their part! Every win will constitute the basis of priceless free publicity in their local paper.

All breeders who sell pet birds, and that constitutes 99% of our membership, should start planning on this year's shows RIGHT NOW!

Remember, it's poor business not to exhibit!

AFFILIATED SOCIETIES

By Matt. Bender

Many of the Bulletins published by Budgerigar Societies affiliated with the National Organization contain information of general interest to ALL members of the American Budgerigar Society. Typical of such information is a report contained in a recent issue of the Michigan Budgerigar Society's Bulletin.

Mrs. Alfred Gilliotte, an M.B.S. member, has produced a Normal Laced Yellow, and a Cinnamon Laced Yellow, approaching the standard of perfection pictured in Dr. Armour's Exhibition Budgerigars. She has also produced yellow-faced birds from a white-faced cinnamon white hen and a white-faced cobalt cock.

Others, too, are working on the production of Laced Yellows, one I believe being Mr. Kromer, recently elected President of the Western Michigan Bird Club, of Grand Rapids, Michigan.

Another report recently read mentioned the existence of an aluminum colored Budgerigar; apparently a mutation of the type commonly termed Silver in many species of avian life.

Information of this type provides an excellent opportunity for Affiliated Societies to obtain free publicity, and new members, through the pages of the A.B.S. Bulletin.

By all means publish such information in your own Bulletin first, but at the same time write up a brief report and submit it to the Editor of the A.B.S. Bulletin; in addition to the writer's name, add a credit line for your Society. In that way, your Society will obtain credit for the report, and you will obtain publicity which will attract new members to your Society.

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In addition to reports of the type described above, Affiliated Societies should submit monthly reports as to the activities of their organization. Every member of the A.B.S. is interested in what the other fellow is doing. Everyone likes to keep up with the Joneses, but we can't do it if we don't know what Jones is doing.

Remember, the A.B.S. has hundreds of members who do not belong to any Affiliated Society. Your articles, and reports, in the A.B.S. Bulletin are the best possible method of calling their attention to the fact that YOU are a LIVE WIRE ORGANIZATION!

Who is going to be first with their Society's report? WHY NOT YOU?

Mr. E. W. Brooks, regular contributor to the A.B.S. Bulletin, and countless other Aviculture publications throughout the world, has been awarded The Silver Star, for outstanding service to the Budgerigar Fancy, by the London & Southern Counties Budgerigar Society.

The recent lifting of the ban on importation of psittacine birds by Great Britain has resulted in that country being flooded with low priced birds of poor quality.

The Budgerigar Fancy in this country can be thankful that the ban on importation has not been lifted, in this country.

Unfortunately for our Sister Fancy, the Canary Breeders are not protected by any such ban on importation. As a result, imported Canaries are being offered in many dime stores for as low as \$3.95!

TESTING THE WHITE-FACED

By E. W. Brooks

How to test the white-faced birds which have produced yellow-faced progeny:

Break up the white-faced pair and test mate to unrelated blues.

If a recessive autosomal yellow-faced factor is involved,

all progeny will be white-faced.

If a recessive sex-linked factor is involved, some of the hens will be yellow-faced; the remainder of the hens and all cocks will be white-faced.

It is best, however, to test mate to a white blue, or cobalt. The remarks above apply to these matings, but if a yellow (normal) turns up then we know that the yellow gene is involved.

Also if a white, either white-faced or yellow-faced, turns up then we also know that the yellow gene is present in the new type.

The original yellow-face, those produced by two white-faced parents, should be paired to whites to test for yellow gene on yellow chromosome.

Two of the yellow-faced from white-faced should be paired, if it is a recessive modifier, then three types will appear. If sex-linked two types. If they are compounds, i.e., dominant plus recessive, and not alleles, you will find different suffusions of yellow - how many I cannot say as we do not know how many genes are involved.

WATCH FOR YELLOWS AND WHITES!

Comment by Matt. Bender:

The first test suggested has been conducted by Mrs. Bruhl with results that clearly indicate that a recessive yellow-faced factor is not involved. A similar test has been suggested for Mr. Staner. The use of white blues instead of blues would, however, provide a better test, as pointed out by Mr. Brooks.

Yellow birds have been produced by both Mr. Staner and Mrs. Bruhl from two white-faced blue parents; a lutino (green or yellow) by Mr. Staner, and a yellow by Mrs. Bruhl.

The results obtained by mating together the yellow-faced birds produced by two white-faced parents will be of great value, PROVIDED considerable care is taken to accurately describe each of the progeny so produced with special attention to depth of suffusion.

Mr. Brooks apparently suspects the existence of a recessive modifier. I believe that a partially dominant factor for blue

exists; this factor being recessive in so far as its ability to mask yellow, or yellow-face is concerned.

(Editor's Note: Following is a letter from a young scientist friend. Recently, he, his lovely wife and his father visited us. I asked his advice for a rare hen that had failed to produce. I also told him of the poor breeding season experienced here, and in Britain in 1950; also that wild life, especially wild duck and geese production, was off. When you read this letter, please note what he has to say about light. Successful bird and poultry breeders all use artificial light to lengthen the days.)

Dear Mr. Hudelson:

We didn't get to talk long enough last Saturday for me to be sure exactly what the problem is, but as I understand it, in the process of cross breeding your birds in order to get desired characteristics, you sometimes find the new birds resulting from the cross to be sterile.

Theoretically it is possible for the failure to reproduce to be due to either the female, the male, or both. From what you said I gather it is the female - but since the procedure I mentioned is equally applicable in either sex, it won't make any difference if I misunderstood this point. The reason that the treatment is nearly the same regardless of the sex is this: In both the male and female the control of reproductive processes (ovary in the female, testes in the male) is under the control of a tiny gland just under the base of the brain called the pituitary gland (or hypophysis). This gland exerts its control over the gonads by discharging a chemical substance (or rather substances) into the blood stream; the blood stream then carries these substances to the gonads where the substances stimulate the process of reproduction. In the female these "hormones" cause the growth and eventual rupture of the follicles and release of eggs. In the male, these same hormones cause growth of the testes and spermatogenesis (the process of development of sperm.)

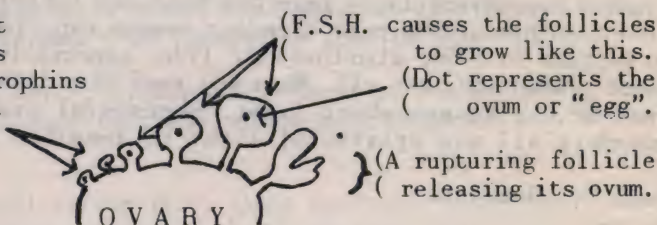
There are two main hormones involved here. Generally speaking they are known as gonadotrophins. Specifically they are known as Follicle stimulating hormone (F.S.H.) and luteinizing hormone (L.H.).

Let's consider the female first. It is well known that the ovary will develop to some extent as the animal (or bird) matures even if these two gonadotrophins are not present (for example if the pituitary was removed surgically when the bird was still very

young.) But in the absence of these hormones, the ovary will never develop enough to allow reproduction.

Supposing the bird is normal though, and the pituitary gonadotrophins are present - here's what happens: The F.S.H. hormone causes the follicles on the ovary to grow in size. Maybe a simplified drawing will help here.

Follicles do not grow beyond this size if gonadotrophins are not present.



This growth continues until a very large follicle is produced. This is known as a mature follicle. At this point, the hormone L.H. comes into the picture. It seems that this hormone is stored in the pituitary until a mature follicle is produced, whereupon it is more or less suddenly released into the blood stream. When it reaches the ovary it causes the mature follicle to rupture releasing the ovum which was inside. In the bird this ovum is embedded in the yolk, and so in the bird the whole yolk is the thing released. And by the way it is this release of the "egg" or ovum from the ovary which is called ovulation.

The yolk then travels down the oviduct where the white and shell are formed around it. Then after it's all finished, it's laid, and this is called oviposition. I forgot one thing though. The male must of course deposit sperm in the oviduct. These sperm, or rather one of them penetrates the yolk and ovum at the time when the ovum is just beginning its trip down the oviduct. If this doesn't occur no embryo will develop within the egg.

Getting back to the pituitary, the release of its gonadotrophins is controlled by a number of factors; for example, light is important, and it is because of this that the eggs are usually laid during a certain time of the day. Also the presence of other birds may be important (in pigeons, the females will seldom ovulate unless other birds or a mirror is present - on the other hand chickens will continue to ovulate and lay even if kept in complete isolation). Season is usually important too. In other words, in some way or other the season controls how much gonadotrophins are discharged by the pituitary. During some seasons only small amounts of these hormones are released and thus the ovary shrinks

in size and no growing or mature follicles are produced. In other seasons, large amounts of gonadotrophins are discharged and thus fully productive ovaries result.

Now to get back to your problem - it is entirely possible that the failure of your birds to reproduce is due to the release of inadequate amounts of gonadotrophin by the pituitary. From the foregoing discussion you can see that two ways to get around this present themselves. (1) You could try regulating the length of light given each day, or presence of other birds, or temperature etc. until you found (maybe) that you could get reproduction to occur. In this case you would be trying to get the birds' own pituitary gland to increase the amounts of gonadotrophins released. (2) The other possibility is that you could inject these needed gonadotrophins and thus cause the ovary to become functional. I said 'inject' because these hormones are inactivated in the stomach and intestines if fed, and they would therefore exert no action on the ovary. The injection could be done in several ways but I would recommend injection into the abdominal cavity (called intraperitoneal injection).

Before I forget it - this second possibility is probably more practical than the first.

In practice you would want to inject the F.S.H. daily for about 5 to 10 days and then on the last day you would want to inject both F.S.H. and L.H. to cause ovulation. The only problem would be - how much F.S.H. and how much L.H. to give. The only way to find this out is to try it and see what happens - and then alter the dose the next time, until you get what you want. You wouldn't have to use the valuable birds for this - instead you could use almost any female in non-breeding season. The dose determined this way would be very close to the dose needed in the valuable bird. Quantities of both F.S.H. and L. H. are measured in terms of International Units (I.U.) From my experience, I would suggest as a first trial about 5 I.U. of FSH daily for 5 days together with 5 I.U. of LH on the fifth day.

The hormones FSH and LH are commercially available at any good prescription center, but you may have to get them on a physician's prescription - I don't know about that end of it.

The FSH that is available commercially is obtained from blood of pregnant mares and is called "pregnant mare serum" or more commonly just P.M.S. Also the commercial luteinizing hormone (LH) is under the name A.P.L. (which stands for anterior-pituitary-like hormone).

In the male the same two hormones would be used, but a some-

what different injection schedule would be employed.

Well maybe this is enough to give you a general idea of what I was talking about last Saturday. I might mention one book that may make all of this clearer to you. It's "General Endocrinology", by C. D. Turner. The chapters on the ovary, testes and pituitary would tell about the things you are most interested in I believe.

If you do decide that this sort of thing might be worthwhile, I'll be very glad to help you in any way I can. Perhaps we could have a little longer talk sometime when I'm down in Indianapolis.

Our bird seems to be getting along very nicely so far. I built a little ladder leading to a perch and he seems to enjoy climbing the ladder and sitting on the perch - and sleeping as you said he would.

Hope I haven't confused you too much on the pituitary-ovary story.

Sincerely,

JIM BASTIAN

INDIANA BUDGERIGAR SOCIETY NEWS

At the annual meeting of the Indiana Budgerigar Society, held in Indianapolis, December 9, 1951, the following members were elected to the Board of Directors, to serve in 1952.

I. B. S. is pleased to present:

President	Mr. Wm. G. Miller	2620 E. 12th St. Indianapolis
Vice President	Morris D. Wertenberger, Jr.	Men's Quad, Box 91 Bloomington
2nd Vice Pres.	Mrs. Irene F. Clouds	332 Barnard Ave. Indianapolis
Secy.-Treas.	Mr. Harold E. Johnson	2928 Euclid Ave. Muncie
Show Chairman	Mr. Fred Waidlich	2516 E. Washington St. Indianapolis

Affiliate representative to the Board of Directors of A.B.S. and other appointments to regular committees will be made in the very near future.

In this meeting it was agreed to continue membership in the Indiana Association of Bird Clubs. "The Association", as it is commonly called, is comprised of several clubs throughout Indiana, for the purpose of holding a combined show each year. It was originally fostered and organized through the efforts of conscientious members of I. B. S. and with the approval of the majority of the membership. The first state show, held in November 1951, proved not only to be a very successful enterprise, but an economical means of staging a large show.

I. B. S. is looking forward to a big year in '52, with a bigger and better show in the fall.

BUDGERIGAR INHERITANCE

INVESTIGATION INTO COLOR PRODUCTION THE RELATIONSHIP OF YELLOW AND BLUE CHROMOSOME PAIRS

First of a Series of Four Articles By
Mr. E. W. Brooks

Before we investigate the relationship of the genes associated with yellow and blue and their relationship to green, let us first of all review what we have already learned.

First of all, we know that the chromosomes are carried in pairs. That only one member of each pair is transmitted to and is found in each of the marrying cells. That we have two kinds of genes, wild type and mutated. The latter being the wild type gene with a new tendency actually in another form of the same gene.

Also that some genes are dominant, while others are recessive. That one dominant gene will make its presence obvious and that before any recessive tendency can be seen there must be two of the recessive genes for that tendency present on the chromosome pair on which they reside. Budgerigars were originally light green and then a new colour appeared - a yellow. If we had only one kind of Budgerigar there would be no need for this investigation or for the use of symbols.

YELLOWS APPEAR

When the yellow budgerigar appeared it was quite natural to cross it to light green in order to see what would happen and also to ascertain its relationship to light green.

Light green crossed to yellow produced all light green

progeny, but since it was known "that what is put in can be gotten out", the resulting light green progeny were back crossed to yellow, and the result that both light green and yellow types were produced.

We will now explain the use of symbols, using a plus sign (+) to denote the wild type mutated gene, and 'y' for yellow.

Since yellow is a new color we will call the chromosome pair on which the gene resides 'The Yellow Chromosome Pairs' and as this gene has mutated we shall allocate + to symbolize this gene in its unmutated form.

We now have two symbols (+) and 'y'.

The li-green budgerigar will therefore carry two + genes on the yellow chromosome pair, and the yellow individual two 'y' genes on the same chromosome pair.

The pure breeding li-green can only transmit +, and the yellow only 'y', therefore, the progeny will carry one + and one 'y' on this pair of chromosomes, and because + is dominant, if only li-green individuals appear, this fact enables us to say that + is dominant to 'y' on the yellow chromosome pair, that it is dominant to its allele.

Symbolized, the genotype is $\frac{+}{y}$, the short straight line denotes the chromosome, the symbols above and below the genes carried by the pair. We will now cross yellow $\frac{y}{y}$ to green bred from light green $\frac{+}{y}$ x yellow. That is $\frac{+}{y}$ x $\frac{y}{y}$. This is the light green split yellow.

By 'split' we mean that the color appearing after the word split is the invisible color tendency which can be transmitted by the individual involved.

From the light green / yellow we can have either the y or + gene. Incidentally, an oblique line between colors denotes that the color appearing before the line is the visible color. The color to the right side of the line the hidden color. When we have (y) from the yellow and 'y' from the light green split yellow, we produce a pure breeding light yellow. When we have 'y' from the yellow and + from the light green, we have a green split yellow, actually an impure light green with the ability to transmit the gene for yellow.

This is an example of crossing the pure breeding recessive with the dominate character carrying the same recessive gene as

the pure breeding recessive.

Li-Green split yellow crossed light green/yellow.

Now let us see what happens when two light green split yellow individuals are crossed. Our mating is symbolized thus: $\frac{+}{y} \times \frac{+}{y}$

(1) (2)

From (1) we receive $\frac{+}{y} \frac{+}{+} \frac{y}{y} \frac{y}{+}$

From (2) we receive

Light Green/Yellow	Lt/Green	Lt. Yellow	Li. Green/ Yellow
Impure	Pure Breeding	Pure Breeding	Impure

One pure breeding dominant $\frac{+}{y}$. One pure breeding recessive $\frac{y}{y}$

and two showing the dominant character but carrying the recessive gene like the parents $\frac{+}{y}$.

We now know the relationship of $+$ to y on the yellow chromosome pair.

BLUE BUDGERIGARS

The next color we have to consider is Blue. When pure breeding li-green is crossed with Blue, also pure breeding, only li-green individuals appear and we therefore say blue, like yellow is recessive to the wild type gene on its chromosome pair, and we call this pair of chromosomes the blue pair.

Consequently, the progeny of li-green x blue carry the "b" gene and will produce some blue budgerigars when crossed to blue. This enables us to conclude that these reside on a chromosome pair not carrying yellow genes and we will, therefore, call this the blue pair/.

This pair of chromosomes can carry two y , two 'b' or one $+$ and one 'b'.

When we cross pure breeding li-greens $\frac{+}{b}$ to pure breeding sky blue $\frac{b}{b}$, we produce progeny which are $\frac{+}{b}$ that is, li-green/blue.

If we cross two of these individuals we find that:

Li-green/Blue $\frac{+}{b} \times \frac{+}{b}$ Li-green/Blue produce
(1) (2)

From (1) we secure $\frac{+}{b}$ $\frac{+}{+}$ $\frac{b}{b}$ $\frac{b}{+}$

From (2) we secure
 Li-Green/Blue Li-Green Blue Li-Green/Blue
 Impure Pure Pure Impure
 Breeding Breeding

One pure Breeding Dominant $\frac{+}{+}$ li-green

One pure Breeding Recessive $\frac{b}{b}$ blue

Two showing the dominant character, but carrying the recessive gene like the parents $\frac{+}{b}$ li green/blue.

We now see the relationship of $\frac{+}{b}$ to 'b' on the Blue Chromosome pair.

This illustrates the cross between Dominant/recessive.

Cross Dominant/recessive when the genes involved are alleles, and this produces the recognized value of:

- 1 Dominant pure breeding
- 1 Recessive pure breeding
- 2 Dominant/recessive

exactly the same as the cross of li-green/yellow x li-green/yellow.

WHAT IS IT?

By J. M. Braunstein

On picking up my last month's Bulletin, I became intrigued with the article by Mr. Ender and believe I may be able to shed some light on Mr. Staner's experience where he states that he received yellow faced young from non-yellow-faced parents. In addition to this, received an albino yellow-face plus a lutino. Strange things happen but I question this so-called lutino. I would rather believe that this bird is a yellowface albino Type 2. As few people have this type 2 yellow face, it is not generally recognized. I ran into a case this past fall where some

ABS

BUDGERIGAR LEG BANDS



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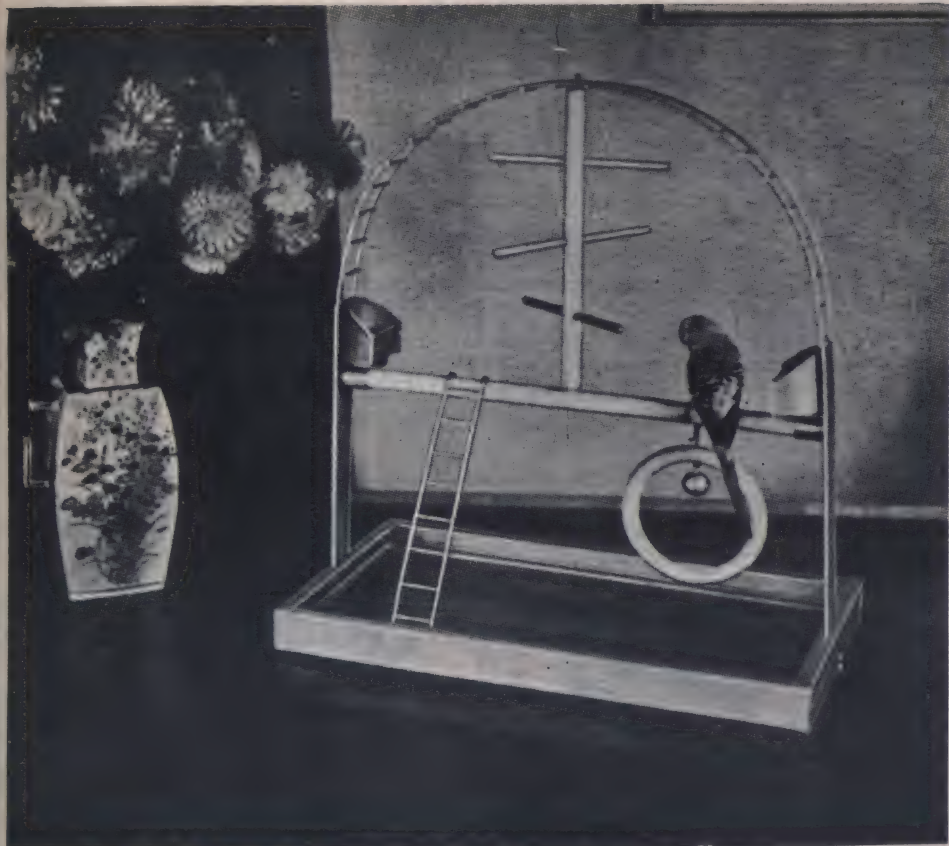
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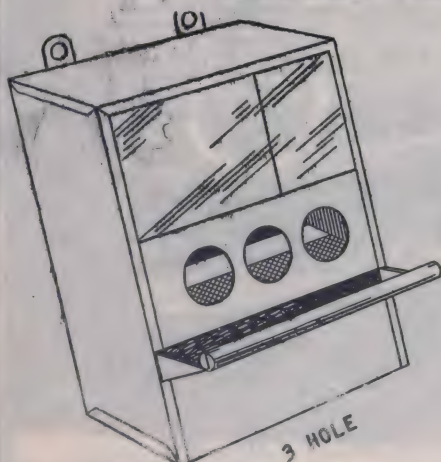
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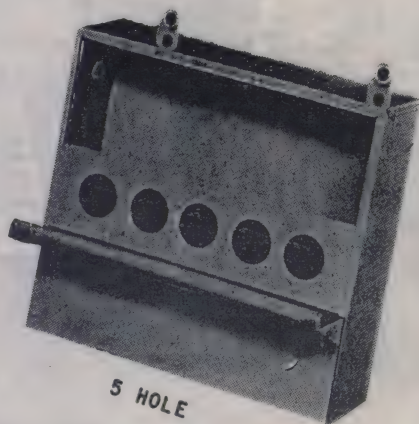
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people who had purchased some of these Type two yellow faced and had bred Albino's from them were having trouble getting them recognized. They are easily mistaken for Lutino unless studied closely. They are more of a buff or cream color whereas the lutino carries the rich yellow shade. As we know the Type one Yellow-Face usually confines the yellow-face to the head and secondary tail feathers. The Type two however overlays the whole bird. It was thought at first that the luminous was a mutation but later breeding results proved it to be yellow-faced yellow. The so-called sea greens are also the result of yellow face action on the general body area. Our so-called Rainbows are Opaline yellow face Whites so one can see it is easily a confusing picture that one can get on some of these color productions whether by accident or design. Now this whole deal can be proven if Mr. Staner will report his results from a pairing of this bird to a white. If he receives green birds then my theory is all wet, and he really has experienced a new thing. I certainly will be following this case with interest.

Now one other report I'd like to touch on is this bird reported in Johnston, Pa. This sounds very much to me like a bird of the Pied series and again of yellow-face. More correctly, a Pied yellow face blue. It's been my experience that most of the Violets purchased are in most cases Split to one or the other rares. I note the granddame in this case was a violet and the possibility of this bird carrying other recessive factors is very probable. Here again more has to be learned by breeding and a study of the results. I only hope we can get the membership to cooperate by sending these results to Mr. Bender, and a close and conscientious record of the results can aid him immeasurably.

I have of late been asked what of new classes for some of these newer colors. I realize the need for them and something will be done about it at a board meeting in the near future. We will support changes where the colors are recognized and not an individual's idea of the color. It's been the experience of the Society that some of the schedule planners of the past years' shows are letting themselves be carried away in the desire to increase the possibility of gaining awards. We believe that by making an award a truly earned achievement will in the end give the fancy as a whole better birds. It is not the easy that is appreciated most; it is the reward attained by greater effort. I once had a teacher in school who penalized me because she felt that while I had earned a B average I could do A work with effort. The result was she gave me a C. It follows here, too, the basic idea is good, tough, clean competition.

AN ADVENTURE IN COLOR

By J. M. Braunstein

After reading Mr. Roger's fine article I thought perhaps I might add a few lines to further substantiate his findings. This past year the author has been experimenting with the peds. While these are preliminary findings, they may be of help to those interested in pied breeding. They are in no sense the last word and are subject to revision as we learn more of this mutation.

First of all, Peds may appear either in the blue or green series and can be bred to each other. Naturally unless your green is split to blue you will produce only Pied green. I have no doubt we can produce pied whites and yellows also, but for the moment, I will stick to that which I have experienced. In mating No. 1, I paired a Pied Blue split opaline cock to an opaline dark green and received two pied opaline cocks, one a light green, the other a dark green, also a light green normal hen, a dark green hen, and an opaline dark green hen. These will be split for pied. As you can see, the mother was not split for blue so we had all green young. In pairing No. 2, I used a crested pied blue split also to opaline paired to an outstanding olive split blue hen. As I had in mind improving type, I used the best hen I had available, color expectation being a secondary matter. Needless to say, I got my wishes in the matter as the results show that I will get some really fine birds after they moult. They are good, big, well-formed birds even now - always a good sign that they will be so after they mature. Now as to color, I received the following - a dark green normal cock, a pied cobalt cock, a pied dark green, a pied dark green opaline hen, an opaline pied cobalt and an opaline cobalt. The latter two are hens. All birds except the dark green normal have visual crests. So we can assume that the crest at least is dominant. I have no doubt I received a very good percentage on this mating and do not believe it to be the general rule. However, I am very happy over the results.

What may we assume from the above? First of all, we can readily see the pied is definitely something different, as the results show it is both dominant and recessive in action to a degree and is definitely not one or the other in entirety. Confused? Don't let it disturb you. This has a lot of us guessing. It will take more time and study to come up with the answer. But let's leave this problem and get into a description of the pied. We can have peds in varying degrees. It can have only a spot on the nape of the neck to one or two flight feathers, to all flight feathers, and the body can be affected also. I have in my pos-

session at present a bird that is all white with a few wing markings and a deep cobalt color in the lower part of the bird body. It also has a few scattered head markings. These are called the Harlequins by some, but I feel we should refer to it as a pied because it definitely is pied and by doing so we won't be creating confusion. Another name used is White or Yellow Flighted but they still are the Pied family.

Pieds in general are of a lighter body color than the normals and a bird that is split to pied is usually of a paler color also. The yellow areas seem as Mr. Rogers report says of a deeper shade. I noticed the cocks seem to have no barring on the head and seem to have adult spots. Whereas the hens have barring and baby spots. They seem to have the stamina of normals and are of fair type. We should not have a great deal of trouble getting them up to exhibition caliber. In my next article, I will take up the Crested and in later articles, the Clearwings and the Violets.

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RAISING BUDGIES

By E. B. Hudelson

To continue my comments from last month. There are many details that appear to be minor, but when combined, they are responsible for successful breeding seasons and healthy stock. Therefore, I will try to deal with a few of the many details.

Grit is an important detail. Several years ago I started studying minerals and experimenting. I read a lot, asked a lot of questions of those who had been trained in this field. I learned the requirements and how the minerals affected the various glands in the bird. I think it was at the end of the third year, my birds refused cuttle bone. This was the first indication that I was making progress. Since that time, each year I learn something new about minerals and grit. I paid some fancy prices for some minerals and they had to be shipped a long distance. Later I found other sources from where I could obtain the minerals, some times in different and improved forms. The blending of these minerals is the secret of the success of any grit mixture. Some are the so-called trace minerals. Although the trace minerals are in miniature quantities, they are just as important as the bulky minerals. Another important item is to know that the minerals are in a form that the glands will utilize them. We have small grit containers that are hung on the fronts of our breeding cages where the grit cannot become fouled from droppings. This mineral grit is not cheap. It costs us more per pound than the seed.

All our cages and flights are equipped with 1/4-inch mesh wire floors over a drawer pan. These wire mesh floors stay clean. The breeding cage floors get a brushing with a wire brush each week on cleaning day.

We use seed hoppers like those advertised in this Bulletin. Although the cost of equipping each cage and flight is considerable, these hoppers are a good investment. There is no seed wasted and the hulls fall into the pan and are easily disposed of. The bird room is cleaner and the seed is always clean. We

only feed once each week or when the seed is low in the hopper.

We use an automatic water fountain and the water is treated with Lugol solution that provides an important mineral and keeps the water pure. Some people water their birds each day. We do not. We refill when the water becomes low. These fountains have a small opening and are therefore more sanitary. On cleaning day, the water fountains, soaked seed dishes are put into a pan of water and a solution is added which cleans and purifies at the same time. You may have guessed by now that I do not like a lot of work. I do hate unnecessary work. The equipment comes out of the solution clean without scrubbing. They are dipped in a rinse water and refilled.

You see we have one big day of work. On the average day, we feed green food in the morning, a hasty look at the birds, and we are through until in the afternoon when the soaked seed dishes are dumped and refilled with fresh soaked seed. Sweep the floor, check the temperature, regulate the ventilators for the night - this requires about 15 minutes work. We do not permit the birds to rest more than 8 hours so the lights are turned off 8 hours before it will be daylight next morning, and this is a detail you need not forget. Keep those birds working and on the move 16 hours each day.

Our breeding cages are large, with only two perches of different sizes - one perch at each end. The birds have a chance to use their wings (very important). We never make it easy for a bird. Water here, seed there, grit another place, and nest box another.

I receive a lot of letters asking for advice - Birds destroying eggs, clear eggs, dead in shell, young dying at 2 weeks of age or older.

There are a number of things that can be wrong. I hesitate to say that it is often poor stock, since everyone will state that their stock is good. But it is a well-established fact and experiments have and will prove that over-breeding will cause it. Also birds that are produced from third nest will after two or three generations produce the above results.

Another cause is improper feeding of good birds. Within the last week I received a letter from a fancier who sent me a list that had been given to her as a nesting food. It contained 19 different ingredients, actually more than 19, since one was a popular nesting food which contains at least 6 separate ingredients. Most livestock raisers have learned that domesticated animals cannot consume the rich food of their wild cousins and

maintain health and long liveability. I often think that bird raisers seldom learn.

Bacteria and mites are another cause of the above trouble, as well as undersized and poorly ventilated boxes and bird rooms. For the past week I have been spending as much time as possible in revising "The Scourge of French Molt in Budgerigars", in preparation of printing the third edition, in which I wrote that the line separating a germ and a mite is difficult to determine. Just where a germ ceases to be a germ and becomes a mite is beyond the ability of a layman to determine. Anyone who has examined a group of germs under a microscope will see a lot of germs that resemble mites. So we should give attention to nest boxes.

Nest Boxes. Our nest boxes are large. The one I like best is 8" square. Each is equipped with removable nest block. After the chicks hatch, we clean the nests each week, the chicks are transferred to a pan that has cedar or pine shavings, the nest blocks are removed, the box brushed clean and sprayed with Dett solution. Dett is a powerful germ killer. We dry the floor of the nest box with a cloth but leave the sides damp. Recently a friend made me a present of a small air compressor. Another friend donated a spray gun. I donated a little ingenuity by using this equipment to spray the cages, birds and nest boxes with Dett Solution. It throws a fine penetrating mist that coats everything. I walk around from cage to cage to flight with the spray gun in one hand and length of rubber hose. "Reddy Kilowatt" does the work. "Use your head, Red".

After the nest boxes are sprayed, a clean nest block is at hand. We sprinkle the floor of the box with D.D.T. Powder, slide the nest block into place over the powder. A handful of shavings that have been previously sprayed with Dett Solution and dried is placed in the nest box. Any chicks that are of banding age are banded at this time and recorded on the card. If the nest box is unusually dirty, the chicks are dunked or sprayed before returning to the clean box.

No one knows how many or what kind of germs are in the bird room. It is safe to say there are thousands of them. The breeding cage and nest box are ideal breeding grounds for them. I receive dozens of reports where Dett has stopped the troubles attributed to bad breeding results. I leave you with this thought:

"An ounce of prevention is worth a pound of cure".

and only the foolish do things the hard way.

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This standard was adopted by The Budgerigar Society of England - The Yorkshire Budgerigar Society of England - The South African Budgerigar Society - The Budgerigar Societies of Ireland and Australia.

Full description of TYPE, HEAD, WINGS, TAIL, POSITION, MASK, SPOTS, MARKINGS, the SCALE OF POINTS, a complete description of every colored variety.

There will also be included a PICTURE of the IDEAL BUDGERIGAR showing all the SHOW POINTS.

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BUTTERCUPS & CLEARWINGS

By Matt. Bender

With the exception of Buttercup and Clearwing, all colors and varieties of Budgerigars are the direct result of mutations, or of combinations of mutant factors. These two types are the result of selective breeding on the part of skilled breeders.

While little is known concerning the early history of these varieties, breeding results clearly indicate that they are the product of selective breeding rather than mutation; breeding results also indicate that they were probably developed from the same basic type - the original light yellow of green suffusion.

In the case of the Buttercup selection was directed toward elimination of the suffusion, and intensification of the yellow coloration. While in the case of the Clearwing selection was directed toward intensification of the body suffusion, and the retention of wings free of any melanistic color.

One of the characteristics of developmental varieties is that they differ from the parent type in several factors, whereas mutant varieties differ in only one factor. Reports as to the results of test matings between Buttercups and Light Yellows, and between Clearwings and Light Yellows, clearly indicate that a difference of several factors does exist in each case.

The mating of Buttercup to Light Yellow is reported to produce progeny uniformly intermediate between the two parent types; a characteristic quite common to the heterozygote where dominance is not involved. If this were a simple monohybrid mating the expectation in the F-2 generation would be 25% Light Yellow, 50% Intermediates, and 25% Buttercups. Actual results produced by mating together F-1 progeny, brother to sister, is reported to be a wide range of colors extending from Light Yellow, through various shades, up to and including Buttercup.

Clearwing Yellow (Yellowing Light Green) to Light Yellow is reported to produce the same uniformity in the F-1 progeny, and the same wide variation in the F-2 generation. Maximum variation occurs in the F-2 generation from the mating of Yellowing to Buttercup.

It is possible to estimate the number of gene differences between two types; Buttercup & Light Yellow, and Clearwing & Light Yellow. Such, however, has not as yet been done for these

two important types.

The appearance, in the F-2 generation, of one Buttercup (or Clearwing) in four progeny would indicate a difference of but one gene; one in sixteen would indicate a difference of two factors; one in sixty-four - three; one in two hundred fifty-six - four.

From all reports that I have read, I believe that it is safe to say that there is a difference of at least four genes between Buttercup and Light Yellow, and between Clearwing and Light Yellow. The gene difference between Buttercup and Clearwing may be far greater than the difference between either of these types and Light Yellow. I consider it possible, however, that the factors responsible for the Buttercup characteristic, and those responsible for the Clearwing characteristic, may be allelomorphic.

Due to the fact that both Buttercup and Clearwing are the result of multi-factor inheritance, about the best advice that can be given to the breeder who wishes to breed either of these types is to mate Buttercup to Buttercup, Clearwing to Clearwing, and don't mate Buttercups to Normals, Clearwings to Normals, or Buttercup to Clearwing.

The breeder who is experimentally minded may, however, find such matings desirable; Buttercups might be used to clarify and intensify the color of Light Yellows; the Buttercup Light Green might be a valuable addition to our show bench; and who can say that the Clearwing Buttercup (Yellowwing Buttercup Light Green) might not be a bird of exceptional beauty?

The primary factor for Buttercup (y') is probably identical with, or an allele of the mutant factor for yellow (y). The other factors associated with the Buttercup characteristic may be considered as modifiers (m), and the normal counterparts of these modifiers as wild type genes (x). The genotypes of Light Yellow and Buttercup would then be as follows:

Light Yellow -	$\frac{y}{y}$	$\frac{x}{x}$	$\frac{x}{x}$	$\frac{x}{x}$	-	-	-
Buttercup -	$\frac{y'}{y'}$	$\frac{m}{m}$	$\frac{m}{m}$	$\frac{m}{m}$	-	-	-

The mating of Buttercup to Light Yellow would produce progeny all of the following genotype:

$\frac{y}{y'}$	$\frac{x}{m}$	$\frac{x}{m}$	$\frac{x}{m}$	-	-	-
----------------	---------------	---------------	---------------	---	---	---

These would be intermediate between Buttercups and Light Yellows insofar as intensity of yellow, and freedom from suffusion is concerned. Mated together the progeny would be capable of producing at least sixty-four different genotypes with varying degrees of intensity of color and freedom from suffusion. However, if one be mated back to the Buttercup parent only one-fourth as many genotypes would be produced.

By careful selection, and close inbreeding, of the progeny, it should be possible to improve a Light Yellow strain both as to intensity of color and freedom from suffusion.

It should also be possible to change a Light Yellow strain into a Buttercup strain through the introduction of a single Buttercup individual. The best progeny should be back crossed to the Buttercup parent repeatedly, and this parent replaced by any superior progeny that may be produced. This process however, would entail the possible loss of one or more pairs of modifying factors. For this reason, it is not recommended.

By mating Buttercup to Light Green and subsequently inter-mating the progeny, it may be possible to introduce into the Light Green strain some of the modifiers present in the Buttercup. Careful selection and inbreeding would be required to retain any improvement so obtained.

While the addition of modifiers to the Light Green strain would probably increase the intensity of yellow, there might also be a loss in intensity of the melanistic color. I consider it possible that the hotly disputed Seagreen Budgerigars of England and Europe may be the result of such a cross.

Some confusion exists as to the action of the Clearwing factors in the minds of many breeders. If the reader will consider for a moment that this variety was developed by selective breeding from the Light Yellow, he will understand that the Clearwing characteristic is produced by the presence of melanistic pigments on the body of a yellow or white, rather than by the absence of melanistic color from the wings of a green or blue.

The Clearwing White, better known as the Whitewing Blue, is actually a White bird plus the Clearwing factors. And, the Clearwing Yellow, better known as the Yellowwing Green, is actually a Yellow bird plus the Clearwing factors.

These factors consist of a primary factor for Clearwing (y'') and three or more modifiers (m'). The primary factor is apparently an allele of Yellow (y), Buttercup (y'), and Greywing. The

primary factor is fully dominant to Yellow and White, dominant as to body color in the Clearwing - Greywing compound but subject to modification by the action of other mutant factors, and fully recessive in all other varieties including the Albino-Lutino group.

The Clearwing genotype is as follows:

Clearwing - $\frac{y''}{y''} \frac{m'}{m'} \frac{m'}{m'} \frac{m'}{m'} - - -$
 2 Factor

If a homozygous Clearwing (two factor Clearwing) be mated to a Yellow or White bird, all progeny produced will be single factor Clearwings; Yellowwinged Greens or Whitewinged Blues.

Clearwing - $\frac{y''}{y} \frac{m'}{x} \frac{m'}{x} \frac{m'}{x} - - -$
 1 Factor

You will note that the progeny carry only one half of the modifiers present in the Clearwing parent. The fewer modifiers present the less perfect will be the Clearwing characteristic displayed by the progeny.

Mate a single factor Clearwing to a Yellow or White bird and 50% of the progeny will be S.F. Clearwings and 50% Normals. If only three pair of modifiers are involved one eighth of the progeny will inherit three modifiers, three eighths two, three eighths one, and one eighth of the progeny will inherit no modifiers; this applies to both the birds that inherit the Clearwing factor and those that don't.

The breeder who continues to mate Clearwing to Normals may eventually lose one or more pair of modifiers. This is especially true where single factor Clearwings are involved. It is always best to mate Clearwing to Clearwing and to rid one's strain of single factor Clearwings as rapidly as possible. In case it should become necessary to mate Clearwings to Normals, select as mates for the Clearwings, normals from previous Clearwing to Normal matings; since most of these will carry modifiers inherited from their Clearwing parent there will be less chance of loss from such matings.

Clearwings mated to Blues and Greens, and variety modifications thereof, produce no Clearwing progeny. If the Clearwing parent be a double factor bird, all progeny will carry a single factor for Clearwing; and if a single factor bird, one half the progeny will carry a single Clearwing factor and one half none. In both cases most of the progeny will carry one or more Clearwing modifiers.

One exception exists to the foregoing paragraph. If the Normal parent is split to blue, yellow or white, the mating may be capable of producing a percentage of yellow or white individuals, and if so these will either be half or all Clearwings depending upon whether the Clearwing parent is a single or double factor Clearwing. To determine whether white or yellow progeny will be produced, a Yellowwing Green must be considered as a Yellow bird, and a White-winged Blue as a White bird. If the Yellowwinged Green is split to White this also must be considered.

Thus the mating of S.F. Yellowwing Light Green X Light Green/Yellow is the equivalent from a color standpoint to the mating of Light Yellow X Light Green/Yellow and will produce 50% Light Green/Yellow and 50% Light Yellow Progeny. One half of the Light Greens/Yellow will carry a single factor for Clearwing, and one half of the Light Yellow progeny will be Clearwing Light Yellows, (Yellowwing Light Greens).

An albinotic individual (albino or lutino) cannot display the Clearwing characteristic; this is masked by the albinotic factor just as other melanistic characteristics are masked. In determining the expectations from a mating involving a Clearwing and an Albinotic individual, first, determine the normal color expectations from the mating; second, determine the percentage of these that will be Albinos or Lutinos; third, determine the expectations for Clearwing.

By mating Clearwing to Greywing, the Full Body Colored Greywing may be produced. Clearwing and Greywing are assumed to be alleles, and if this be true, an individual may carry two factors for Greywing, two factors Clearwing, or one of each but not more than these numbers. Through selective breeding, however, the number of Clearwing modifiers present in the compound type might be increased to the number present in the clearwing.

Australia has been reported as having a true breeding Full Body Colored Greywing. While I have no information as to the origin of this type, its existence constitutes more than a suggestion that the factors for Greywing and Clearwing are not alleles. Instead they may be so closely situated on the same chromosome that cross overs rarely occur. And through such a rare occurrence in a Clearwing-Greywing compound (Full Body Colored Greywing) the genes for Clearwing and Greywing may, in Australia, have been brought together on the same chromosome, thereby making the true breeding type a possibility.

Probably the most difficult breeding task that a breeder might attempt, and with the least assurance of success, is that of

combining the Clearwing and Buttercup characteristics in the same individual. Both are the result of selective breeding rather than mutation. There is without doubt many factors involved in the differences between the two types. And, the more factors involved, the more difficult will be the task.

Eventually, though, some breeder will successfully bring together in one individual, the outstanding characteristics of these two developmental varieties.

CORRECTION

On page 18 of the February Bulletin I stated, "In some species of birds blue, green and even white pigment exist."

That statement is erroneous. Blue pigment has been found in some vertebrates but NOT in any form of avian life of which I have knowledge. White pigment has been found only in the Lamprey and on the wings of some species of Butterflies; NOT on birds. Green pigment, however, does exist in at least one species birds.

FOUR PERCENT

By Matt Bender

In most business operations a margin of four percent spells the difference between success and utter failure. And, a four percent improvement in the fanciers breeding methods may well mean the difference between success and failure on the show bench.

A method of obtaining a four percent improvement in one's breeding methods exists; it is as simple as sex-linked inheritance - yet there are some who would keep the following knowledge from the practical breeder.

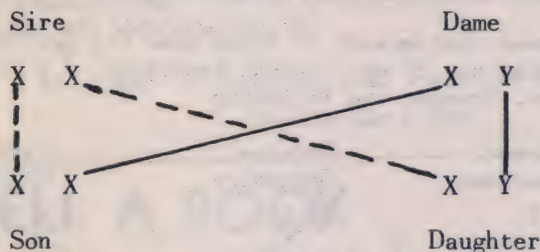
The Budgerigar has approximately twenty-five pair of chromosomes. Therefore, according to the laws of probability, four percent of the genes carried by an individual must be located on the X-chromosomes. Some of these pertain to color as has been proven by mutations. Others, without doubt, have a direct effect upon type.

Ordinary methods of selection, suitable for autosomal factors, are unsuitable for X-linked factors. The breeder, therefore, who wishes to make maximum use of X-linked factors pertaining to type, must adopt a system of selection based upon our knowledge as to the manner in which such factors are inherited.

X-linkage tends to make sons look like their mothers, and daughters like their fathers. Many breeders have noticed this effect, as it pertains to certain characteristics, and base their selections upon what they have observed. Such selection, however, ignores the known facts concerning sex-linkage.

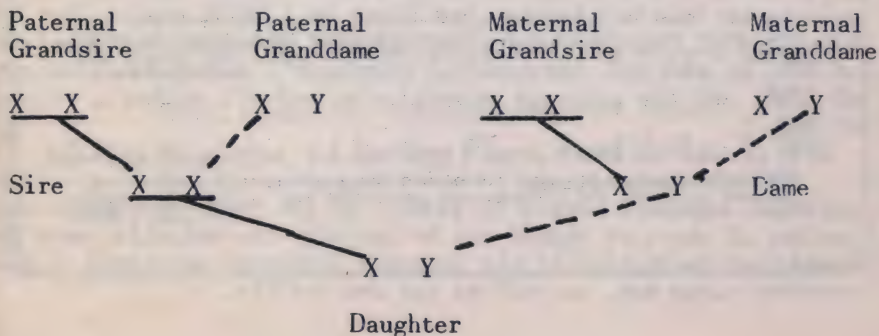
The male carries two X-chromosomes; one inherited from his mother, and one from his father. The female carries but one X-chromosome - inherited from her father. Because of these facts the breeder who wishes to make maximum use of X-linked factors, must adopt two methods of selection; one for the production of top quality cocks, and a different method for the production of top quality hens.

To understand why this is so, examine the following diagram:



The son receives one X-chromosome from his father, and one from his mother; both therefore contribute to the X-linked characteristics displayed by their sons. The daughter, however, receives her single X chromosome from her father. All of her X-linked factors are therefore inherited from the paternal line - none are received from the maternal line.

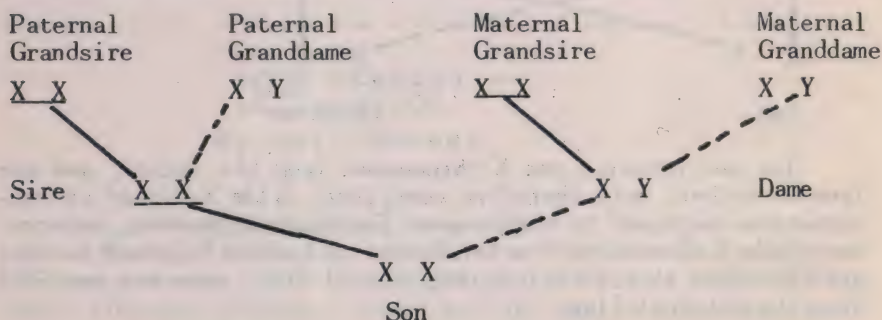
Now let us assume that we wish to breed some top quality exhibition hens, making use of our present knowledge of X-linkage and X-linked factors. Examine the following diagram:



An examination will show that the maternal line has no effect upon X-linked inheritance in her daughters. Daughters inherit their X-chromosomes from their father, and he in turn inherits his own X-chromosomes- one from the paternal grandsire and one from the paternal granddame. And since the sire must have inherited the single X-chromosome carried by the paternal granddame, she has a value of 50% in determining any X-linked characteristics to be inherited by her granddaughters. In turn the mother of the paternal grandsire has a value of 25%, and the mother of the paternal grandsires father 12½%.

In matings intended to produce top quality hens, greatest emphasis should be placed on selection for quality of the maternal ancestors in the paternal line, mentioned in the previous paragraph. This does not mean that the quality of the sire or dame may be ignored; only about four percent of the genes are X-linked.

Now let us assume that we wish to breed some top quality exhibition cocks, making use of our present knowledge of X-linkage and X-linked factors. Examine the following.



An examination of the diagram will show that a son inherits the sole X-chromosome carried by his mother; she therefore has a weight of 50% in determining the X-linked characteristics displayed by her son. Since the second X-chromosome inherited by a male comes from his father, and there is a 50-50 chance that he inherited it from his mother, the paternal granddame has a weight of 25%. In addition, the paternal grandsire's mother has a weight of 12½%, and the paternal grandsire's father's mother a weight of 6¼%.

In setting up matings intended to produce top quality cocks, greatest emphasis should be placed on the dame. And while the quality of the sire should not be ignored, his selection must be based upon the quality of the maternal ancestors mentioned in the previous paragraph, as well as his own quality.

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So far as X-linked factors are concerned, selection based upon the apparent quality of females is more accurate than similar selection of males. Since the female has but one X-chromosome, in the absence of autosomal dominance or epistasis, all factors carried on this single X-chromosome, both dominant and recessive, must be visibly expressed.

In the case of males, with their two X-chromosomes, apparently desirable characteristics may be produced by heterozygosity and not be capable of being transmitted to their progeny.

The key to the use of the foregoing breeding system, and without which it is valueless, is detailed records concerning the quality of the ancestors of one's birds. The more accurate and detailed these records, the more effective will the system be!

RAMBLING HERE AND THERE

By E. B. Hudelson

The New York State Budgerigar Society Meeting will be held Sunday, March 16th at Jamaica Hall, 168-15 - 91st Ave., Jamaica, N.Y. Thomas E. Carpenter, President; Mrs. Marie Olssen, Corresponding-Secretary, 8534 - 148th St., Jamaica 2, N.Y. It is no longer necessary for Budgie Breeders to hide in the cellar. Let's keep it this way. All Budgie Breeders attend this meeting. If you cannot attend, write their Secretary and get behind this group.

All clubs, especially those affiliated with the A.B.S., be on your guard! There are subversive groups at work! In unity there is strength! Let's keep it that way. The history of subversive groups is to destroy that which is good in order to gain control. The world is ill today due to such groups.

The Budgerigar Society of Virginia is completing requirements to become affiliated with the A.B.S. Meeting - 4th Thursday of each month. Mrs. J. A. Thurston, Secretary, 409 Craig Ave., Richmond, Va. You budgie breeders in Virginia will do well to join this society.

Thanks for all your kind remarks regarding my article in the January issue, "Raising Budgies", and many, many thanks for the donations received, Mrs. Sue Ruth. Here is a lady who lost her husband three years ago. By converting her home into apartments and from the sale of Budgies, she is now free of debt. Her donation was a token of appreciation to our writer. Folks, when you receive such letters, you know there is a God in heaven.

Mr. W. R. Clarke, we acknowledge your donation with grateful appreciation, and the very best of luck to you.

We were very glad to hear from 1st Lieut. H.A. Whowell, A-1582821, 561 Q.M Petroleum Supply Co., A.P.O. 169, c/o P.M., New York, N.Y., who is stationed in Germany. He will be glad to hear from any A.B.S. members. One of the nicest things we can do for our boys overseas is to let them know they are not forgotten.

The trade names some people give the various colors is getting out of hand to the extent that I am at times at a loss to know what they are writing to me about. Let's stick to the established names of the various colors. If you don't know the colors, let's all learn them and try to educate others as to the proper and correct description of the various colors. Tradespeople are forever manufacturing new shades in a color and giving it a name, but we cannot do it in Budgies because the colors of budgies are controlled by genes and they may be good or bad in color, but nevertheless shades of these colors do not change the genetic line-up or create a new variety.

I had two letters last month in which the writers gave the ancestry of a bird. That would be impossible to determine the varieties from the trade names they gave as the colors of the parents and great grandparents. In the Green series, there are just three classes, Li-Green, Dk-Green and Olive. The light green is the same shade as rich green grass. The dark green is a darker green - should be level in shade and easily distinguished as such. The olive is the darkest of the three shades and the ideal olive color in my estimation is close to the color of an old copper penny. Each of these colors should be distinct and sharp.

We also have Yellows in the three classes, Li-Yellow, Dk-Yellow and Olive Yellow. These shades in colors are called suffusions, Li-Green, Dk-Green and Olive Suffusion. Those yellow budgies that are described as Buttercups are not of a different variety from the other yellows. They are the normal black-eyed yellows. The Buttercup color has been developed by a system of selection and elimination, selecting birds for breeding that possess the solid pure yellow color and eliminating those that have green suffusion. The best Buttercup color ever produced can be lost very quickly by mating to birds that carry green suffusion in their plumage. I think it requires more skill to produce and then retain the so-called Buttercup color than to accomplish the ideal in any other variety. There are more disappointments in this variety and fewer really good exhibition quality birds than in any other variety. I have seen only one top quality yellow budgie and perhaps five or six that could be classed as fair to good in color.

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In the Blue series, there are Sky Blue, Cobalt Blue and Mauve. The black-eyed whites belong to the blue series and carry the three suffusions, namely, Sky, Cobalt and Mauve. Here again, purity of color is desirable, that is, birds that are as pure white as is possible.

GREY WINGS

A few years ago there was a great deal of discussion regarding the Greywing variety among the breeders in Britain. Some were of the opinion that they were nothing more than badly-marked birds of the green and blue series. I have seen greywing budgies that had markings bordering on brown. In fact, they were exhibited in the shows as Cinnamons, and brother, you were in for an argument if you told the exhibitor they were nothing more than poorly marked greywings. We also see some normals that fail in marking. The marking of normals should be black on white or yellow ground, depending on whether the birds belong to the green or blue series.

CLEARWINGS

Here, as in the Greywing, it is not difficult to get an argument. Actually, I do not believe there is any more basis for claiming the Clearwing to be a variety than there is in claiming the Buttercup to be genetically different from the yellows. The Clearwing in my opinion is genetically the same as all black-eyed birds. The deeper body color and the white or yellow wing has been developed by selecting birds for breeding with heavily suffused body feathers and faintly marked white or yellow wings. They are pretty birds, and credit should be given to the fancier who devotes his time to their development. They are striking in appearance.

Cinnamons, Opalines, Violets, Greys, and Fallows are each a separate variety and came about by mutation. They can be produced in all the colors such as: Li-green, Dk-green, Olive, Sky, Cobalt, Mauve, White and Yellow. The White and Yellow can be produced in all six suffusions. However, in the Fallows, the White and Yellow colors should be free of all wing and body marking. They come the nearest to the Albinos and Lutinos in being pure in color, with the exception of a really fine Buttercup, of which there is only one in a thousand. But I must mention that one exception to stay out of arguments.

On the subject of Violets, I do not wish to make lengthy comments as will publish articles on them in the very near future. I will make this statement because I have heard it repeated too often when some breeder, upon seeing one for the first time, often under artificial light, or where the bird is seen from a distance,

will comment, "Well, if that is a Violet, I have Cobalts just as good." To them, I wish to say that I also have some of the best colored cobalts I have seen. But they fail to stand up in color with a Violet even just a fair violet when they are compared in a show cage where the light is good. There are some breeders who are doing some intelligent breeding to improve our Violets.

Another mistake that is being made is classing greyish Mauves as Greys. The tail feather of a true Grey is black (jet black) and should not be confused with the greyish Mauves or Greywing. They are a distinct variety.

The above does not include all the varieties. I have not discussed the Albinos, Lutinos, Yellow-Face, etc. But let's use Standard descriptions when we talk or write about Budgies.

Now another mutation? "The Laced Yellow!!" I do not know but I am afraid the picture in Dr. Dunker's book 'Exhibition Budgerigars' is responsible for the reports being circulated. Two other breeders and myself were perhaps the first ones in the U.S. to possess birds resembling the Laced Yellows. However, we do not claim they are laced Yellows. These birds are "Fallow Greens". The body and head is yellow, the wing markings are brown. The birds have pink eyes. The brown markings are like those of the Cinnamon budgie. I think it is almost a certainty that when properly mated, a black laced wing bird with yellow body can be produced, and it would be split to fallow. So let's don't get excited when we see an unusual bird in the nest until we have explored the genetic make-up of its parent. Remember this. Due to the great traffic in budgies in the past few years in the U.S. and Canada, there is not one breeder in 50 that knows the true pedigree of all his birds.

Last fall I was asked to view a so-called mutation at one of the shows. The owner was of the opinion that she was breeding into a line of Albinos and she had record of 3 or 4 generations. She was very sure. But actually, the original white bird was not an Albino. It was a Fallow White.

Mr. Staner:

Please mate the Lutino produced by two white-faced blue parents, to an unrelated white skyblue and send report on progeny produced to me.

Purpose of this test is to determine the genotype of that Lutino. I wish to know whether it is a Lutino Green, a Lutino Yellow, or a badly diffused yellow-faced Albino, or white-blue. If yellow progeny are produced, please describe as to intensity of color. Also make the same test with the yellow-faced Albino.

Mrs. Bruhl:

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MATT.

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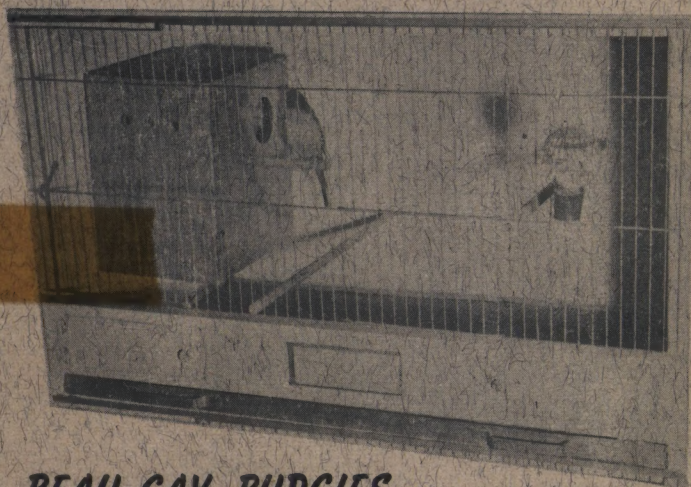
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